Initiatives and Implementation of Sustainable Development Goals (SDGs)
KITS Warangal

Departments are requested to submit department-specific information on initiatives, curriculum integration, projects, research, internships, outreach, and infrastructure contributions aligned with UN Sustainable Development Goals (SDGs), as per the enclosed SDG framework.

Department Name:

Inclusion of SDGs in URR18/URR18R22/URR24 Curriculum: In view of importance of sustainable development goals as advocated by United Nations (UN) in 2015, the following courses were included in the curriculum of Physical sciences.

SDG-PO ARTICULATION Matrix

	PO1	PO2	3	4	5	6	7	8	9	10	11	PSO 1	PSO 2
SDG1													
SDG2	2	1	2			2	1	1	1				
SDG3	1	2	1				1	1	1	1	1		
SDG4													
SDG5													
SDG6	1	2	1				1	1	1	1	1		
SDG7	1	2	1	1	1	1	1	1	1				
SDG8													
SDG9	2	1	1	1	1	1	1	1	1		1		
SDG10													
SDG11													
SDG12													
SDG13	2	2	1	1	1	1	2	1	1	1	1		
SDG14	2	1	1			1	1	1	1	1			
SDG15	2	1	1			2	1	1	1	1			
SDG16													
SDG17													

Pls mark
1.Low
2.Moderate
3. High
Note :1.Add additional COLUMNS if needed
2. Department should make justification document for SDG-P0 Articulation Matrix

Curriculum Mapping to SDGs

SDG	Sustainable	Relevant courses in curriculum of

	Development Goal	**URR18/URR18R22/URR24**
SDG-1	No Poverty	
SDG-2	Zero Hunger	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies
SDG-3	Good Health and well being	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies
SDG-4	Quality Education	
SDG-5	Gender Equality	
SDG-6	Clean water and Sanitation	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies
SDG-7	Affordable and Clean Energy	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies U18CH103/203-Engineering Chemistry U24CY102/202 -Engineering Chemistry U18PH103/203-Engineering Physics U24PY102/202 -Engineering Physics
SDG-8	Decent Work & Economic Growth	
SDG-9	Industry, Innovation & Infrastructure	U18CH103/203-Engineering Chemistry U24CY102/202 -Engineering Chemistry U18PH103/203-Engineering Physics U24PY102/202 -Engineering Physics
SDG-10	Reduced Inequality	
SDG-11	Sustainable Cities & Communities	
SDG-12	Responsible Consumption & Production	
SDG-13	Climatic Action	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies U18CH103/203-Engineering Chemistry U18PH103/203-Engineering Physics U24CY102/202 -Engineering Chemistry U24PY102/202 -Engineering Physics
SDG-14	Life below Water	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies
SDG-15	Life on Land	U18CH109/209-Environmental Studies U24CY106/206-Environmental Studies

SDG-16	Peace, Justice & Strong Institutions	
SDG-17	Partnerships for the Goals	

R & D activities towards SDGs –
Funded Projects (Sample projects)

1. *Faculty name- Dr.D.Madhavi Latha, PSD*
   Title - Prediction of Liquid Crystal Properties-Machine Learning Approach
   Funding agency- DST, 2023-24
   Amount – 40,00,000/-

Research papers

CAY 2024-25(As per NBA)

S.No	Name of the Faculty	Title of the Paper	SDGs addressed	SCI/Scopus/ Conference
1	Dr.H. Ramesh Babu	One-pot synthesis, anticancer, EGFR and caspases assays of novel fused [1,2,3] triazolo-pyrrolo [2,1-b]quinazolinones.	SDG-9 : Industry, Innovation & Infrastructure	Scopus
2	D.Prabhakara Chary	Synthesis and biological evaluation of chalcone incorporated thaizole-isoxazole derivatives as anticancer agents, Chemical Data Collections	SDG-9: Industry, Innovation & Infrastructure	Scopus
3	Dr.M. Ranadheer Kumar	Synthesis of novel[1,2,3]triazolo[4',5':3,4]pyrrolo[1,2-a]thieno[2,3-d]pyrimidines: Potent EGFR is targeting anti-breast cancer agents	SDG9: Industry, Innovation & Infrastructure	Scopus
4	Dr.E.Kalyan Rao	"Microwave-Assisted Synthesis and Evaluation of Bis[(1-benzyl-1H-1,2,3-triazol-4-yl)methyl] 7,8′-Methylenebis[2-(E)-(benzylideneamino)-4H-chromene3-carboxylates] as Potent Antimicrobial Agents"	SDG9: Industry, Innovation & Infrastructure	Scopus
5	Dr.V.Sunil Kumar	Annealed Temparaturesol-gel deposited P-channel type CUXCR1-XO2-thin film transistors	SDG7: Affordable and Clean Energy	Scopus
6	Dr V. Prashanth Kumar	Thermal and electrical characteristics of praseodymium-based perovskites as a function of iron and cobalt substitution	SDG7: Affordable and Clean Energy	SCI
7	Dr.D. Praveena	Molecular structure, UV–Visible spectra and other molecular properties of (E)-2-(2-hydroxy-5-methoxybenzylidene)hydrazinecarbothioamide and its n-methyl variant by using	SDG9: Industry, Innovation & Infrastructure	SCI

		DFT methods		
8	Dr. P. Srinivas Rao	MHDPowell–Eyring fluid flow with Cattaneo Christov heat and mass flux over a stretching sheet	SDG7: Affordable and Clean Energy	SCI

JUSTIFICATION REPORT FOT SDG -PO ARTICULATION MATRIX PHYSICAL SCIENCES

SDGs	POs /PSOs	Justification for mapping
SDG-2 Zero Hunger	**PO 1**	Apply environmentally sustainable measures such as sustainable agriculture, efficient water management, soil conservation, and reduced chemical inputs to contemporary issues and challenges associated with natural resources .
	PO2	Develop an action plan for sustainable alternatives such as organic farming, crop rotation and conserving resources.
	PO3	Apply the knowledge in identifying eco-friendly batteries, machines for societal benefits.
	PO6	Apply ethical and environmentally sustainable responses to contemporary issues and develop an action plan for sustainable alternatives to prevent environmental degradation.
	PO7	Implement ethical and environmentally sustainable mining practices and soil-restoration measures to prevent land degradation.
	PO9	Plan strategies individually and member of a team regarding the usage of resources more equitably
SDG-3&6 Good Health and well being & Clean water and and Sanitation	**PO1**	Apply the knowledge to identify and implement methods for conserving water resources and protecting aquatic ecosystems to ensure clean water availability and proper sanitation for society.
	PO2	Implement methods such as water conservation, wastewater treatment and pollution control which addresses water scarcity and contamination, improving water quality.
	PO3	Apply ethical and environmentally sustainable responses to biodiversity conservation challenges to protect water ecosystems.

	PO7	Apply sustainable water management practices and appropriate technologies to address water scarcity and sanitation challenges.
	PO8	Implement professional and ethical principles while carrying out sustainable water management and sanitation practices.
	PO9	Apply collaborative and professional skills to implement sustainable water management and sanitation solutions.
	PO10	Utilize effective communication skills to promote sustainable water management and sanitation practices among stakeholders.
	PO11	Apply project management and leadership skills to plan and implement sustainable water management and sanitation initiatives.
SDG-7 Affordable and Clean Energy	**PO 1**	Identify sources of environmental pollution and plan effective pollution-control methods.
	PO2	Analyze energy-related problems such as inefficiency and reliance on fossil fuels for sustainable energy solutions.
	PO3	Apply engineering and scientific principles to implement efficient, affordable and clean energy solutions.
	PO6	Apply sustainable and environmental principles to assess the societal impact of conventional and renewable energy systems.
	PO7	Promote eco-friendly and energy-efficient practices on Electrostatics, Magnetostatics, Semiconductor diodes, Quantum mechanics – energy-efficient electronic and power systems
	PO8	Apply ethical principles to practice responsible decision-making in the use of conventional and renewable energy resources.
	PO9	Apply teamwork and leadership skills to coordinate the planning and execution of clean and affordable energy projects.
SDG9 Industry, Innovation & Infrastructure	**PO1**	Identify the methods to analyze Lasers, Optical fibers, Semiconductor diodes, Quantum computing – digital communication, industrial electronics, advanced computing infrastructure and water quality parameters and various softening methods of water
	PO2	Problem Analysis: Analyze and interpret theoretical and practical data at various workplaces.
	PO3	Design/ Development of solutions: Design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, health and safety, manufacturability, and sustainability.
	PO4	Investigations of complex problem: Develop the ability to apply the knowledge of applied research to investigate complex problems and provide viable solutions.

	PO6	Summarize the tools which can soften hard water and recognize the constraints in using plants of reverse osmosis and electro dialysis for softening of water
	PO9	Multidisciplinary Approach: Develop a multidisciplinary approach and function on multidisciplinary teams.
SDG13 Climatic Action	**PO1**	Apply the knowledge of energy-efficient semiconductor devices, low-loss optical fiber communication, quantum technologies enabling reduced energy consumption processes in solving/analyzing problems in Climate change.
	PO2	Analyze the synthesis of environmentally benign products
	PO3	Design/ Development of solutions: Design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, health and safety, manufacturability, and sustainability.
	PO4	Investigations of complex problem: Develop the ability to apply the knowledge of applied research to investigate complex problems and provide viable solutions.
	PO6	Apply the knowledge on manufacturing of engineering materials and nanomaterials which are eco-friendly
	PO7	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
	PO9	Multidisciplinary Approach: Develop a multidisciplinary approach and function on multidisciplinary teams.
SDG 14&15 Life below water & Life on Land	**PO1**	Apply the knowledge to identify and implement methods for conserving water resources and protecting aquatic ecosystems to ensure clean water availability and proper sanitation for society.
	PO2	Implement methods such as water conservation, wastewater treatment and pollution control which addresses water scarcity and contamination, improving water quality.
	PO3	Apply ethical and environmentally sustainable responses to biodiversity conservation challenges to protect water ecosystems.
	PO7	Apply sustainable water management practices and appropriate technologies to address water scarcity and sanitation challenges.
	PO8	Implement professional and ethical principles while carrying out sustainable water management and sanitation practices.
	PO9	Apply collaborative and professional skills to implement sustainable water management and sanitation solutions.
	PO10	Utilize effective communication skills to promote sustainable water management and sanitation practices among stakeholders.

Declaration

Certified that the above information is correct and supported with evidence.

HoD Name & Signature
Date : 04.02.2026